

REMARKS

In the present Amendment, Claim 1 has been amended to incorporate the subject matter of Claim 4, which depended from Claim 1. Accordingly, Claim 4 has been canceled.

No new matter has been added. After entry of the Amendment, Claims 1-3 will be pending.

Referring to page 2 of the non-final Office Action, Claims 1-4 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent Application Publication No. 2003/0032822 ("Tsuji") and U.S. Patent No. 4,075,254 ("Boodman").

Applicants traverse and respectfully request the Examiner to reconsider in view of the amendment to the claims and the following remarks.

Claim 1 recites a process for producing propylene oxide comprising an oxidation step, an epoxidation step and a converting step, wherein the converting step produces cumene, which is recycled to the oxidation step, and methylbenzyl alcohol, which may be considered a byproduct of the converting step. Claim 1 further recites that the amount of methylbenzyl alcohol present in the liquid containing cumene, which is recycled to the oxidation step, is 1% by weight or less.

Furthermore, Claim 1 recites a methylbenzyl alcohol removing step for controlling the amount of methylbenzyl alcohol contained in the liquid containing cumene recycled back to the oxidation step.

Tsuji and Boodman, alone or in combination, do not render obvious the presently recited method for producing propylene oxide, *at least* because the references fail to teach, disclose or suggest (1) a step for controlling the amount of methylbenzyl alcohol contained in the liquid containing cumene that is recycled to the oxidation step and (2) that the amount of methylbenzyl

alcohol present in the liquid containing cumene that is recycled to the oxidation step is 1% or less.

In fact, Tsuji and Boodman are completely silent with respect to the amount of and even the presence of methylbenzyl alcohol in the liquid containing cumene that is recycled to the oxidation step. Accordingly, nothing within Tsuji and Boodman discloses, let alone suggests, that since methylbenzyl alcohol is accumulated in the reaction system, and since the concentration increases with time as the recycle of cumene continues, the amount of methylbenzyl alcohol within the system increases and becomes an oxidation-inhibiting substance, in addition to reducing the effective reaction volume. See page 10, lines 19-26, of the clean copy of the substitute specification.

The Examiner takes the position that it would have been obvious to a person having ordinary skill in the art, in view of the disclosure at paragraph [0016] of Tsuji, “to minimize the amount of cumene [recycled] to the oxidation stage, since too much cumene would result in a high concentration of the hydroperoxide upon oxidation, which as taught by Tsuji et al [is] decomposed during hydrogenolysis and is converted into acetophenone.”

Applicants respectfully disagree with the Examiner.

As an initial matter, Applicants submit that (1) the present claims do not recite a method for minimizing the amount of “cumene” recycled to the oxidation stage; and (2) the present claims do not expressly recite a method for minimizing the amount of isopropyl benzene hydroperoxide that is converted to acetophenone. Nothing within the section of Tsuji cited by the Examiner suggests either the necessity of, or a step for, minimizing the concentration of “methylbenzyl alcohol” in the liquid containing cumene that is recycled to the oxidation step.

Further, Applicants disagree that the amount of methylbenzyl alcohol in the liquid containing cumene that is recycled to the oxidation step is a result-effective variable.

In fact, Tsuji and Boodman's silence with respect to the concentration and the affect of methylbenzyl alcohol in the liquid containing cumene that is recycled to the oxidation step precludes the references from identifying the concentration of methylbenzyl alcohol in the liquid containing cumene that is recycled to the oxidation step as a result-effective variable.

To reiterate, the cited art fails to disclose or suggest *at least* (1) the by-production of methylbenzyl alcohol, (2) the existence of methylbenzyl alcohol in the liquid containing cumene that is recycled to the oxidation step, (3) the accumulation of methylbenzyl alcohol in the system as a result of the continuous process, (4) the harm caused by the methylbenzyl alcohol accumulated in the liquid containing cumene that is recycled to the oxidation step, (5) a step for removing the accumulated methylbenzyl alcohol outside of the reaction system, and (6) that the amount of methylbenzyl alcohol in the liquid containing cumene that is recycled to the oxidation step is controlled to be 1% by weight or less by the removal step.

In view of the comments set forth above, Applicants submit that there would have been no reason to combine and modify the references as set forth by the Examiner, and therefore, the Examiner has failed to establish a *prima facie* case of obviousness.

Moreover, even if a *prima facie* case of obviousness could be established, Applicants submit that the *prima facie* case would be rebutted by the superior results provided by minimizing the amount of methylbenzyl alcohol in the liquid containing cumene that is recycled to the oxidation step, which results would have been unexpected to a person of ordinary skill in the art in view of the disclosures of Tsuji and Boodman. See Examples 1 and 2 at page 12 of the

clean copy of the substitute specification, wherein the production rate of cumene decreases with the increase in methylbenzyl alcohol in the recycled cumene.

In view of the above, Applicants respectfully request reconsideration and withdrawal of the §103 rejection of Claims 1-4 based on Tsuji in view of Boodman.

Referring to page 4 of the Office Action, Claims 1-4 were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as allegedly being unpatentable over claims 5-8 of co-pending Application No. 10/572,450.

On the same page, Claims 1-4 were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as allegedly being unpatentable over claim 6 of co-pending Application No. 10/572,876.

Without acquiescence in the merits of the above rejections, Applicants defer response to the rejections at this time, since the above rejections are provisional, as being based on co-pending U.S. applications.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Michael G. Raucci
Registration No. 61,444

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

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